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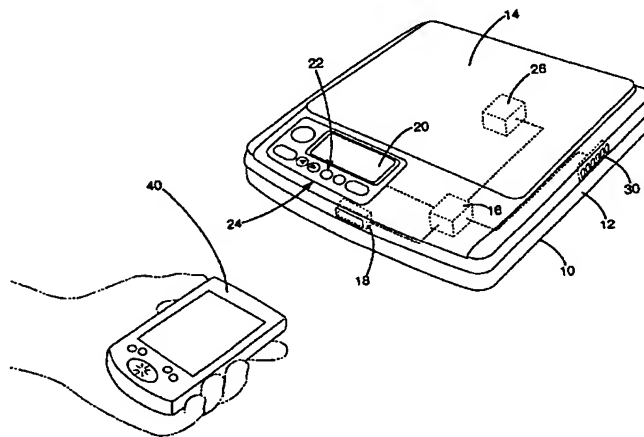
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(54) Title: **INTERACTIVE COOKING APPLIANCE**



(57) Abstract: A programmable cooking appliance (10) interacts with a user to perform operations to prepare a meal. In one embodiment, the cooking appliance includes a processor (16) coupled to an output element, such as a display (20) or an audio speaker (30). The processor (16) may be coupled to a port or sensor (18) to receive cooking instruction signals from an intelligent device (40), such as a personal data assistant, cell phone or computer. In one process, a user downloads the cooking instructions from the intelligent device (40) to the processor (16). The processor (16) processes the instructions to provide interactive audible or visual commands to the user to prepare a meal. The commands instruct the user to perform certain operations, for example, adding an ingredient, adjusting heat application or manipulating the components of a meal. The cooking instructions may be downloaded to the intelligent device from a computer network or database.

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INTERACTIVE COOKING APPLIANCE

BACKGROUND

This application claims benefit from U.S. Provisional Patent Application Serial No. 60/327,262, filed October 5, 2001.

The present invention relates to cooking and, more particularly, to programmable cooking appliances.

Most conventional cooking appliances include controls to adjust the amount of heat added to a meal that is prepared with the cooking appliance. For example, many ovens, ranges, microwaves and toasters including knobs or keypads that enable a user to manually set the heat applied (e.g., the temperature of the oven) and the cooking time. A drawback to conventional cooking appliances is that the controls must be manually set by a user. Thus, the user must correctly estimate the precise temperature and cooking time for the meal prepared. Moreover, if the meal requires the addition of separate ingredients, or stirring of the ingredients at specific times, the user must be intimately familiar with the meal preparation instructions or have those instructions, nearby for frequent reference.

One attempt to enhance the control of conventional cooking appliances is to program an appliance to cook a meal for a specific period of time at a specific temperature. U.S. Patent 6,100,509 to Saito discloses such programming used in connection with a microwave to heat pre-packaged airplane meals. A user controls the microwave with a remote control, which stores multiple codes, each code including heating temperatures and a heating time specific to a prepackaged meal. After placing a prepackaged meal in the microwave, the user identifies and transmits the code, unique to the meal, to the microwave to initiate cooking. The microwave then cooks the meal without further interaction by the user.

Conventional cooking appliances, including those that are programmable, simplify some aspects of meal preparation, however, they suffer several shortcomings. First,

they rely on the input of a user to control the settings, for example, cooking time and heat applied. In situations where the user is not intimately familiar with the cooking instructions for a particular meal, the cooking appliance is unhelpful. Second, conventional cooking appliances provide little assistance where meals are cooked "from scratch," for example, where different ingredients are added at different times to prepare the meal. Third, if ingredients or components of a meal must be manipulated at specific times in cooking, the cooking appliance is unhelpful to the user. Fourth, where remote controls are used to program cooking appliances, the cooking appliances are limited to preparing meals only in accordance with the conditions stored in the remote control, which may be a limited due the memory capacity of the remote. Moreover, if a user transmits the wrong code with the remote, the meal may be over- or under-cooked. Furthermore, conventional appliances fail to provide any feedback to sense and adjust the temperature based on the food being cooked with the appliance. Accordingly, such appliances must be frequently monitored.

SUMMARY OF THE INVENTION

The aforementioned problems are overcome in the present invention wherein a programmable cooking appliance interacts with a user to perform operations in preparing a meal. The cooking appliance receives cooking instructions downloaded from an intelligent device, which are used to control the cooking appliance and provide audio and/or visual instructions to a user so that the user performs specific operations in the course of preparing a meal.

In one embodiment, the cooking appliance is an induction range including a processor that is in communication with a sensor and an output device, such as a display or an audio speaker. A user downloads cooking instructions to the sensor and then the processor. The processor instructs a user to perform an operation, such as adding an ingredient, adjusting the temperature, or manipulating (e.g., stirring) the food prepared.

In another embodiment, the cooking appliance includes a temperature sensor to monitor the temperature of the meal being prepared on the heating surface. Based on the monitored temperature, the processor adjusts the amount of heat supplied through the heating surface according to predefined parameters of the instructions. Additionally, the processor may automatically shut-off the heat application if unsafe temperatures are sensed.

In yet another embodiment, the present invention provides a method in which cooking instructions are downloaded from the computer network to an intelligent device and subsequently transferred to the cooking appliance. The method generally includes the steps of (a) downloading cooking instructions from a computer network or database to an intelligent device, (b) transferring the cooking instructions to the cooking appliance and (c) communicating the cooking instructions to a user through the cooking appliance so that user may perform operations to prepare the meal. Optionally, the information downloaded to the intelligent device from the computer network or database includes ingredients of the meal. The user may access these ingredients when shopping for the ingredients in a store or market. Furthermore, a user may program their favorite meals into a software template to create cooking instructions that are compatible with the cooking appliance. The user may share these instructions with others.

The present invention provides a simple and effective cooking apparatus that interacts with a user to prepare a meal. First, because the cooking appliance provides the instructions to the user, the user may prepare a desired meal with minimal thought and without reference to a cookbook. Second, the cooking appliance times the cooking operations internally for the user. Third, the cooking appliance assists a user in preparing a meal from scratch by providing the user with instructions to add and manipulate ingredients at specific times to optimize meal preparation. Fourth, a variety of different cooking instructions for different meals may be downloaded to the appliance with the intelligent

device. Furthermore, with the programmable cooking instructions programmed to a software template, a user may easily share favorite recipes with others.

These and other objects, advantages and features of the invention will be more readily understood and appreciated by reference to the detailed description of the invention and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of an intelligent device transferring information to and/or from the cooking appliance in accordance with the present invention;

Fig. 2 is a perspective view of the cooking appliance during a meal preparation; and

Fig. 3 is a perspective view of a computer and an intelligent device used in the present invention.

DETAILED DESCRIPTION OF THE INVENTION

I. Overview

A cooking appliance in accordance with an embodiment of the present invention as shown in Figs. 1-3 and generally designated 10. The cooking appliance generally includes a heating surface 14 on which a meal is prepared. The appliance further includes a processor 16 in communication with communication port 18, an audio speaker 30 and/or control panel 24 which includes a display screen 20. In operation, an intelligent device 40 downloads information to the cooking appliance, preferably using infrared or comparable wireless communication technology, however, other hard wire technology may be used for downloading. The processor receives the information from the sensor and begins a cooking cycle. During the cooking cycle, the processor operates the cooking appliance according to the information, and interacts with a user to prepare a meal according to the information. Specifically, the processor 18 outputs operations included in the information to the audio speaker 30 and/or display screen 20 to instruct a user to perform specific

operations. Such operations may include, for example, adjusting the heat applied through the heating surface 14 to the meal 60, adding ingredients, manipulating the food, etc.

Optionally, as shown in Fig. 3, a specific recipe, which includes instruction operations and/or ingredients necessary to prepare a meal, is downloaded to the intelligent device from a computer network and/or database with which the computer 50 is in communication with or which is stored in the computer 50. A list of the downloaded ingredients may be accessed by a user via the intelligent device when the user goes shopping to obtain those ingredients. The instructions of the recipe are downloaded to the cooking appliance as explained above.

II. Structure

With reference to Figs. 1 and 2, the cooking appliance will be described in more detail. In one embodiment, the cooking appliance 10 is an electric induction range, however, the present invention is well-suited for other cooking appliances including, but not limited to, ovens, microwaves, broilers, crock pots, grills, electric and gas ranges, and toasters. Thus, as used herein, cooking appliance refers generally to a device adapted to cook or otherwise prepare food. Moreover, as used herein "meal" means any food suitable for consumption, optionally including multiple ingredients that comprise components of the food..

Referring again to Fig. 1, the cooking appliance 10 includes a housing 12, also referred to as a base, with which components of the cooking appliance are joined or enclosed within. The housing houses the sensor 18, processor 16, control panel 24 and related display 20, audio speaker 30 and temperature sensor 26.

The sensor 18 preferably is any sensor adapted to receive, and optionally transmit, data via a wireless communication from, and/or to, an intelligent device as explained below. In one embodiment, the sensor is an infrared data association ("IrDA") sensor, also referred to as an infrared sensor. Different types of wireless communication

methodologies are suitable for use in the present invention, and include, but are not limited to, diffuse infrared, directed infrared and/or radio frequencies. Given a specific application, the sensor may be outfitted to perform under any and/or all of these methodologies. Optionally, the sensor may be substituted with a hard wire communication port, for example USB port, to provide a wire or cable connection between the intelligent device and the processor so that the processor may receive cooking instructions.

The processor 16 is in communication with the sensor 18 to receive information downloaded to the sensor, and optionally to transmit information from the processor to the intelligent device through the sensor. The processor is further adapted to process the information, also referred to as "data," or "instructions" and perform functions based on the information. For example, the processor has sufficient processing capability to adjust heat applied through the heating surface 14 in accordance with the instructions transferred from the intelligent device. Additionally, the processor may indicate on the display 20 and the audio speaker 30 that the cooking instructions are being downloaded from the intelligent device, that the download is complete, or specify the meal to be prepared with the downloaded instructions.

The processor optionally includes a memory for storing, instructions downloaded from intelligent device 40. In one embodiment, the memory stores multiple sets of preparation instructions for different meals. A user may access or initiate a specific set of instructions by downloading an alphanumeric identifier to the cooking appliance. The memory may also be used to store the instructions for a user's favorite meals so that the instructions may be rapidly accessed by entering a code with the control panel 24, without downloading instructions from the intelligent device.

In one embodiment, the information includes instructions for preparing a meal including one or more operations. Exemplary operations include, but are not limited to: the adjustment of the temperature of the heating surface 14, the addition of specific ingredients,

and/or manipulation of the food of the ingredients of the meal. As used herein, "manipulate" means any mechanical operation to adjust the physical state of the food, including but not limited to, flipping, turning, rolling, stirring, mixing, separating or otherwise altering the physical state of the ingredients of the meal or the entire meal itself.

A timer also may be incorporated into the processor. The timer may be used to ensure that operations are performed in the proper sequence and at the correct time as a meal is prepared. For example, the timer may track the passage of time after an operation is performed so that the next operation is performed within a time specified in the instructions. The instructions may include specific codes to initiate the timer to begin timing an event when a certain procedure is carried out, for example, when the user turns on the heating surface 14 or operates the control panel 24. Optionally, the timer may time the application of heat with the heating surface 14.

With reference to Fig. 1, the processor 16 is in communication with the control panel 24, which includes display 20 and controls 22, and optionally the audio speaker 30. The display 20 may be any conventional display, for example, a liquid crystal display ("LCD") display panel. Optionally, the display 20 may include an overlying touch sensitive resistive contact panel (not shown) to substitute or in addition to the physical controls 22 on the control panel 24.

The controls 22 of the control panel 24 allow a user to manually control the cooking appliance 10. For example, with the controls, a user may perform multiple operations including, but not limited to, adjusting the heat supplied through the heating surface 14, powering and de-powering the cooking appliance 10, searching for instructions for a particular meal stored in the processor 16, placing the sensor 18 and processor 16 in a download mode so that instructions may be downloaded to the cooking appliance 10, and setting or adjusting timers for timing events, for example, the addition of ingredients, during a cooking sequence.

The controls of the control panel 24 also may enable a user to confirm that the user has performed a specific operation. For example, after the processor cues the user to perform an operation via the display 20 and/or the speaker 30, and the user performs the operation, the user may activate the controls 22 to indicate to the processor that the operation has been performed. In turn, the processor may control the cooking appliance to indicate another instruction to the user, and/or perform another operation without user interaction. For example, the processor 16 may automatically adjust the amount of heat supplied to the heating surface 14.

Furthermore, the control panel 24 and/or the intelligent device may enable a user to adjust the portions of the meal prepared. For example, the processor 16 of the cooking appliance 10 may prompt the user via the display 20 to indicate the number of servings of the meal desired. After the user enters the number of servings, the processor 16 may adjust the operations to prepare a meal sufficient to accommodate the specified number of servings.

Referring to Figs. 1-2, the processor 16 may be in communication with an audio output 30, which as shown, is an audio speaker. The audio speaker is adapted to receive signals from the processor 16 and emit a tone or voice command or alarm to indicate to a user that an operation must be performed or that an operation has been performed. Optionally, the audio speaker may emit an electronic noise, for example, a beep or series of beeps to indicate to the user that a specific operation should be performed. Specific audio signals, for example, a unique series of beeps, may identify a particular operation in the instructions for preparing a meal.

The cooking appliance 10 may further include a temperature sensor 26 which monitors the heat applied through the heating surface 14. The sensor relays the heat information, also referred to as temperature, to the processor 16 so that the processor may monitor and adjust, or instruct the user to adjust, the heat applied to the heating surface.

Optionally, the processor may automatically shut-off the heating surface 14 when the sensor 26 detects unsafe temperatures on the heating surface. Although not shown, the sensor 26 may be in the form a probe adapted to rest within or in contact with a container, for example, the pot 60 of Fig. 2, in which the meal is prepared.

As noted above, the instructions are downloaded from an intelligent device to the cooking appliance 10. As used herein, an intelligent device includes but is not limited to: a personal digital assistant, for example, a Palm Pilot® and a Game Boy®; a cellular phone; a microprocessor; a lap top computer; and a personal computer. The intelligent device preferably includes sufficient memory to store instructions for preparing a meal. The memory dedicated to the instructions may be permanent or temporary, so that the user can erase the instructions and release memory capacity of the device after downloading the information to the cooking appliance. The intelligent device preferably includes a transmitting and/or receiving port also referred to as a sensor, so that it can communicate with the cooking appliance 10. Optionally, the intelligent device includes sufficient memory to store multiple cooking instructions for the user's favorite meals so the user may download those specific instructions to the cooking appliance 10 as desired.

With reference to Fig. 3, a specific intelligent device 40 mounts in a communication port 42, which is further communication with a personal computer 50. Information is downloaded from the computer to the intelligent device. This information may be in the form of a data file including cooking instructions for preparing a meal. In addition to the cooking instructions, a list of ingredients necessary for preparing the meal may be downloaded in the same data file or in a different data file. Accordingly, the intelligent device, with the list of ingredients stored therein, may be taken by the user when acquiring the ingredients from a grocery store or market. In the store, the list of ingredients may be accessed by the user. Incidentally, the list of ingredients preferably is not downloaded with the cooking instructions to the cooking appliance 10 to reduce the amount

of memory required by the processor 16. However, if desired, the ingredients may be downloaded as the application requires.

In a second embodiment, meal information may be obtained from a database or computer network having specific files or sites dedicated to downloadable files including cooking instructions for meals, and, optionally, ingredients and quantities of ingredients necessary to prepare the meals. An example of an Internet website that will enable users to access cooking instructions and ingredients for unique meals is Quixtar.com.

In a third embodiment, the present invention may enable a user to create their own instructions for preparing a meal and store those customized instructions in the intelligent device 40 and/or the computer 50 for later reference and/or transfer to the cooking appliance. Specifically, a user may input into the intelligent device 40 or the computer 50 cooking instructions for a particular meal in a standardized format that is recognizable by the cooking appliance using a template program. The template program may be available to the user in a software package or over the Internet. The input instructions may be specific to a family recipe, a cookbook recipe, a recipe generally known to the user, or a recipe available from a pre-packaged meal kit, for example a meal kit available under the trade name "Hamburger Helper," available from General Mills, Inc. of Minneapolis, Minnesota. The user may abbreviate the particular instructions to a format that is preferred by the user or specified by the template program. After the instructions are input to the template, the resulting programmed instructions are ready for download and implementation with the cooking appliance.

Optionally, a user may share their programmed instructions with other users of the cooking appliance. To facilitate this sharing, a database of many unique instructions may be created by multiple users, and shared in a variety of ways, for example over the Internet. Shared instructions, likewise, may be downloaded to an intelligent device 40 and subsequently downloaded to the cooking appliance 10 to interact with a user to prepare a

meal. Alternatively, cooking instructions stored in a first user's intelligent device may be transferred to the intelligent device of another user to share the first user's cooking instructions.

III. Operation

Operation of the present invention will be described with reference to Figs. 1-3. In a specific embodiment, a user accesses a database or communication network with a computer 50. From a website having preprogrammed instructions designed to operate the cooking appliance of the present invention, the user selects a particular file for the meal that the user desires to prepare. The file, also referred to as information or a recipe, includes instructions for preparing the meal and/or a list of ingredients necessary to prepare the meal. The recipe is downloaded to the intelligent device through the docking station 42 and stored in the memory of the intelligent device 40. Optionally, the user removes the intelligent device 40 from the docking station 42 and takes it with them to a location to obtain the ingredients, for example, a grocery store or market. There, the user may access the ingredients stored in the intelligent device to obtain the ingredients. The user may take the ingredients to the location where the cooking appliance 10 is located.

In another step, the user accesses the cooking instructions stored in the intelligent device 40. The instructions are transferred to the sensor 18 of the appliance 10. As shown in Fig. 10, the transfer is completed via a wireless communication between the sensor 18 of the appliance 10, however, hard-wired communication may also be used for transfer as desired. The appliance may or may not be turned on for the communication to be successful.

In another step, the processor processes the transferred cooking instructions to prepare a meal in accordance with those instructions. In so doing, the cooking appliance interacts with a user, cueing the user to perform certain operations included in the instructions at specific stages in the meal preparations. The cooking appliance cues the user

via the control panel 24 and/or audio speaker 30. For example, the user initially may be instructed by a message displayed on the display 22 to place a container or pan 60 on the heating surface 14 with certain ingredients therein. The user may indicate that they have performed this operation by pressing a control button 22 on the control panel 24. At this point, the processor may initiate heating of the ingredients and set an internal timer to time the application of heat and cooking cycle. The timer may track the time that elapses between one operation, e.g., adding an ingredient, to index when the cooking appliance must perform or cue the user to perform a subsequent operation, e.g., adjusting the heat applied to the meal with the heating surface 14.

After the final ingredient has been added to the meal, or the meal cooked a sufficient amount of time, the processor indicates to a user via the display screen 20 or the audio speaker 30 that the meal is ready for consumption. The processor 16 optionally may adjust the amount of heat applied to the heating surface 16 to a lower temperature, such as a simmering or warming temperature, or shut-off the cooking appliance 10.

IV. Examples

The following examples are illustrative only and should not construed as limiting the invention.

A. Example 1

In a first example, the user may desire to prepare a meal using a meal kit available under the trade name, Hamburger Helper, and a specific amount of hamburger. In this example, the cooking appliance is an induction range.

To begin, a user may access the instructions including operations for preparing the meal stored within their cellular phone. The user may then transfer via a wireless communication, e.g., infrared code, the cooking instructions to the sensor 18 of the cooking appliance. The instructions are communicated to the processor 16. The processor 16 informs

the user via the display 20 that the cooking instructions are being downloaded for Hamburger Helper.

After download is complete, the processor 16 informs the user via textual instructions on the display 22 to begin the cooking operations, for example, to bring the heating surface 14 to a particular temperature. The user may adjust the cooking temperature with the controls 22, and monitor the amount of heat supplied to the heating surface 14 via the display 22. When the processor senses through temperature sensor 26 that the heating surface 14 has attained the desired temperature, it alerts the user, via an audio beep through the audio speaker 30, to review the display 22 for the next instructions.

The display 22 displays an instruction to brown the meat at a specific temperature for a specific amount of time. The user then proceeds to brown the meat as instructed. When the specific amount of time has passed to brown the meat, as timed by the timer of the processor, the processor indicates to the user via a beep from the speaker 30 to attend to the meal. The processor also requests the user, via display 22, to confirm that the meat is brown by actuating a control 22. After confirmation, the processor 16 displays on the screen 20 an instruction to mix the Hamburger Helper with water or other ingredients and add those combined ingredients to the browned hamburger. After so doing, the user may activate controls 22 to indicate that the operation has been performed.

At that point, the processor may indicate to the user that the temperature has been adjusted to adequately prepare the combined ingredients while the processor 16 adjusts the amount of heat applied to the heating surface 14. The user may then perform other tasks, such as preparing for dinner, while the induction range heats the food at the desired temperature. After the passage of a sufficient amount of time, the processor 16 indicates to the user via the display screen and/or audio speaker 30 that the meal is ready.

Optionally, the processor will cause the audio speaker 30 to beep several times to ensure the user is adequately alarmed. If after a specific passage of time, the user does not

attend the induction range, for example, by turning the range off or manipulating the control panel 24, the induction range may either turn off the heating surface or turn the heating surface 14 down to a warming temperature.

B. Example 2

In another example, the user may desire to prepare a meal of beef curry. With little knowledge of the ingredients of beef curry, let alone the instructions for preparing the meal, the user docks their Palm Pilot® the docking station 42, as shown in Fig. 3. With the computer 50, the user accesses a website on the Internet that includes a recipe for beef curry that is compatible with the cooking appliance of the present invention. The user downloads the recipe to the intelligent device 40. The recipe includes two sets of data, an ingredient data set and an instruction data set, collectively referred to in this example as "information." The user may then take the Palm Pilot® to the market for collection of the ingredients for dinner. At market, the user may access the data set for the ingredients to refresh their memory and use the data set as a grocery list while shopping.

When initiating preparation of the cooking appliance 10, which for purposes of this example is an induction range, the user downloads the cooking instructions in a manner similar to that of Example 1. After download is complete, the processor indicates to the user via textual output on the display 22 to place water in the pan 60 shown in Fig. 3 and bring the water to boil. The user adds the water, and optionally enters the amount added through the control panel 24. The processor 16 measures the temperature of the heating surface 14 until it senses via sensor 26 that the amount of heat added to the heating surface is sufficient to boil the amount of water added to the pan 60. At that point, the processor 16 indicates via beeping through the audio speaker 30 to attend the cooking appliance 10 and simultaneously displays output on the display 20 that the water is boiling.

The processor then instructs the user via text on the display 22 to add vegetables. A user indicates that they have completed the operation by actuating the controls

22. In accordance with the cooking instructions, the processor determines the amount of time to prepare the vegetables and applies heat to the heating surface for that time. After the amount of time has passed, the processor again indicates to a user to carry out another step, for example to add another ingredient, such as beef, or to manipulate the meal in the pan 60. This process is repeated until all of the ingredients of the beef curry are added and all the operations are sufficiently performed by the user as cued by the induction range to complete preparation of the meal. The processor may indicate to the user that the meal is complete as in Example 1.

The above descriptions are those of the preferred embodiments of the invention. Various alterations and changes can be made without departing from the spirit and broader aspects of the invention as defined in the appended claims, which are to be interpreted in accordance with the principles of patent law including the doctrine of equivalents. Any references to claim elements in the singular, for example, using the articles "a," "an," "the," or "said," is not to be construed as limiting the element to the singular.

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for preparing a meal comprising:
downloading information to an intelligent device, the information including at least one of an operation for preparing a meal and a list of ingredients;
transferring the information from the intelligent device to a cooking appliance;
and
communicating the operation to a user with the cooking appliance so that the user performs the operation to prepare a meal.
2. The method of claim 1 comprising accessing the list of ingredients and acquiring ingredients corresponding to the list.
3. The method of claim 1 wherein the operation communicated to the user is an operation selected from the group consisting of adding an ingredient to a meal, manipulating the meal, and applying an amount of heat to the meal.
4. The method of claim 1 wherein the information is downloaded in said downloading step from at least one of a computer network and a database.
5. The method of claim 1 wherein the communicating step is carried out by signaling a user with at least one of an audible alarm and a display screen.
6. The method of claim 1 wherein the information is encoded in an infrared code and wherein said transferring step includes transmitting the infrared code from said intelligent device to the cooking appliance.
7. The method of claim 1 comprising programming the information into a software template, said template adapted to control the cooking appliance in said communicating step.

8. A cooking process comprising:
- heating at least one component of a meal with an amount of heat;
- receiving instructions including a plurality of operations for preparing a meal;
- and
- cueing a user to interact with the meal and perform at least one of the plurality of operations.
9. The cooking process of claim 8 wherein said cueing step is initiated based on at least one of a period of time and the amount of heat.
10. The cooking process of claim 8 wherein the plurality of operations include at least one operation selected from the group consisting of adjusting said heating step, adding an ingredient to the meal and manipulating the meal.
11. The cooking process of claim 8 wherein said cueing step is performed with at least one of an audio speaker and a display screen.
12. The cooking process of claim 8 wherein the heating step is performed by an induction range.
13. The cooking process of claim 9 wherein said heating step is automatically adjusted by the induction range based on the instructions.
14. The cooking process of claim 8 wherein said heating step is performed by a cooking appliance including a processor adapted to receive said instructions.
15. The cooking process of claim 14 comprising storing the instructions in the intelligent device and downloading the instructions to the processor.
16. A process for programming a cooking appliance, comprising:
- downloading instructions for preparing a meal to an intelligent device from at least one of a computer network and a database;
- activating the intelligent device to transfer the instructions to a cooking appliance; and

receiving the instructions with the cooking appliance, wherein the cooking appliance includes a memory to store the instructions.

17. The process of claim 16 wherein the instructions include operations for preparing the meal and ingredients of the meal.

18. The process of claim 16 wherein a user inputs the instructions to the at least one of a computer network and a database.

19. A cooking appliance comprising:

a base;

a heating surface adapted to supply an amount of heat, said heating surface joined with the base;

a receiver adapted to receive instruction codes, said codes including a plurality of operations for preparing a meal;

an indicator; and

a processor in communication with the indicator, wherein said processor processes the instruction codes and interacts with a user by providing at least one of an audible and visual command with the indicator to instruct a user to perform at least one of said plurality of operations.

20. The cooking appliance of claim 19 wherein said operations are selected from the group consisting of adjusting the amount of heat applied with the heating surface, adding an ingredient, and manipulating the meal.

21. A cooking system comprising:

a housing;

a heating means for heating at least one component of a meal, said heating means associated with said housing;

signal receiving means for receiving a first signal including instructions, said instructions including a plurality of operations for preparing a meal, said signal receiving means associated with said housing; and

output means for generating a second signal to instruct a user to perform at least one of said plurality of operations, said output means associated with said housing.

22. The cooking system of claim 21 wherein the heating means is a heating surface of an induction range.

23. The cooking system of claim 21 wherein the signal receiving means is an infrared detector.

24. The cooking system of claim 21 comprising a memory for storing said first signal.

25. The cooking system of claim 21 wherein said second signal is at least one of a display and an audio speaker.

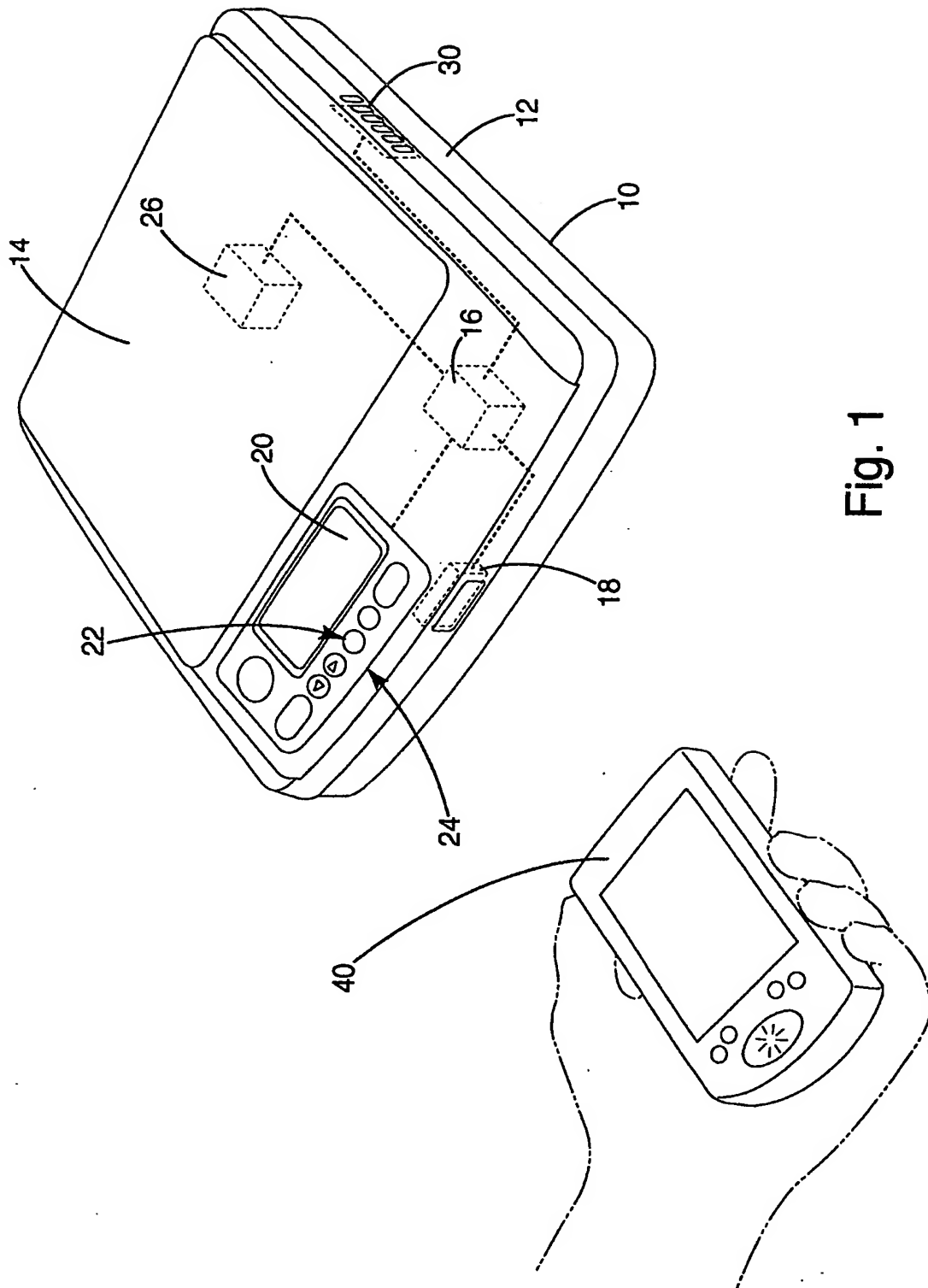
26. The cooking system of claim 21 wherein said second signal is at least one of a tone, an electronic voice and a visual display.

27. The cooking system of claim 21 wherein the second signal is a verbal command instructing a user to perform at least one of the plurality of operations.

28. The cooking system of claim 21 comprising a processor that controls said heating means based on said instructions.

29. The cooking system of claim 21 wherein said output means generates said second signal based on at least one of a period of time and a predetermined amount of heat applied with said heating means.

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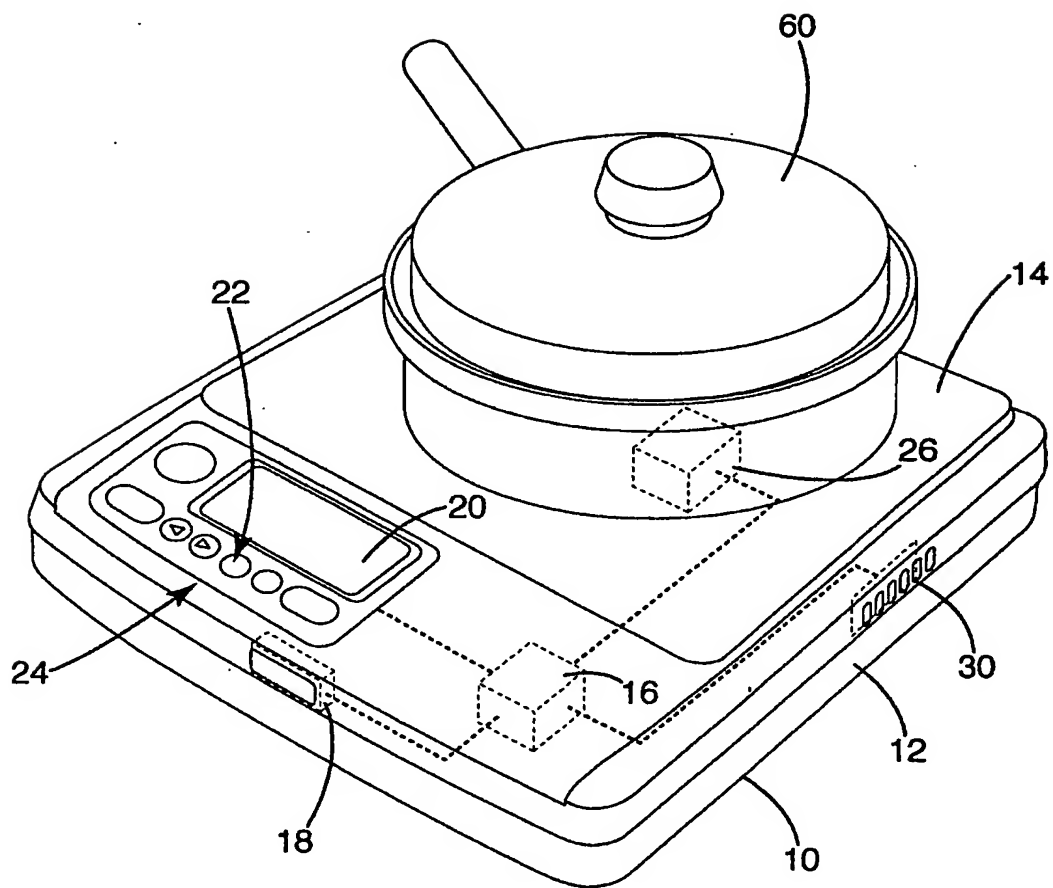


Fig. 2

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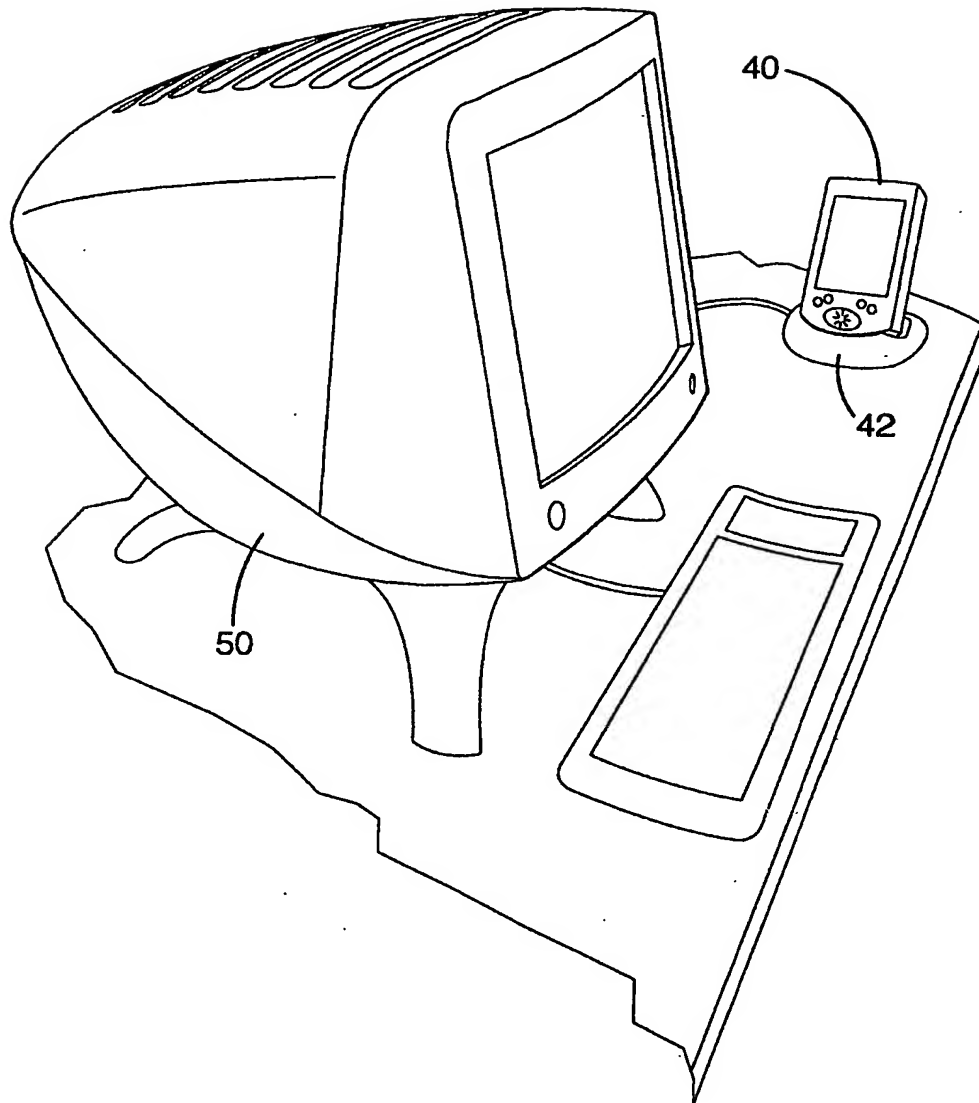


Fig. 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/31701

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F24C7/08 H05B6/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F24C H05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 041 860 A (SHARP KK) 4 October 2000 (2000-10-04)	1-11, 14-18, 21, 23-26, 28,29
Y	abstract; claims 1-68; figures 1,2,22,23,24,25,49A-50,95	19,20,27 12,13,22
A	---	
X	EP 0 965 795 A (NCR INT INC) 22 December 1999 (1999-12-22)	1-5, 8-11,16, 17,21, 24-26,29
Y	column 3 -column 5; claims 1-9	19,20,27

	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

14 January 2003

Date of mailing of the international search report

22/01/2003

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Merkt, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/31701

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 199 63 899 A (BSH BOSCH SIEMENS HAUSGERAETE) 5 July 2001 (2001-07-05) abstract -----	27
X	US 4 837 414 A (EDAMULA KAORU) 6 June 1989 (1989-06-06) abstract; claims 1-14; figures 1-3,8,9	1,3,5,8, 10,11, 14,15, 19-21, 24-26
Y	-----	19,20
X	FR 2 798 757 A (MOULINEX SA) 23 March 2001 (2001-03-23) the whole document -----	1,8,16, 19,21
X	DE 43 17 624 C (IHMEIS CHRISTIAN) 1 June 1994 (1994-06-01) the whole document -----	1,3,5, 7-11, 14-21, 24-26, 28,29

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 02/31701

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1041860	A	04-10-2000	JP 2000356350 A	26-12-2000
			JP 2000356351 A	26-12-2000
			JP 2000346366 A	15-12-2000
			JP 2000346367 A	15-12-2000
			CN 1271829 A	01-11-2000
			EP 1041860 A2	04-10-2000
EP 0965795	A	22-12-1999	EP 0971174 A2	12-01-2000
			EP 0971175 A2	12-01-2000
			EP 0965934 A2	22-12-1999
			EP 0971176 A2	12-01-2000
			EP 0965795 A2	22-12-1999
			EP 0965796 A2	22-12-1999
			JP 2000039155 A	08-02-2000
			JP 2000097436 A	04-04-2000
			JP 2000111057 A	18-04-2000
			JP 2000104927 A	11-04-2000
			JP 2000097437 A	04-04-2000
			JP 2000097438 A	04-04-2000
			EP 0986240 A2	15-03-2000
			EP 0986213 A2	15-03-2000
			EP 0986230 A2	15-03-2000
			EP 0985884 A2	15-03-2000
			EP 0985885 A2	15-03-2000
			EP 0985886 A2	15-03-2000
			JP 2000242705 A	08-09-2000
			JP 2000242706 A	08-09-2000
			JP 2000242707 A	08-09-2000
			JP 2000242708 A	08-09-2000
			JP 2000242709 A	08-09-2000
			JP 2000242710 A	08-09-2000
			US 6480753 B1	12-11-2002
			US 6359270 B1	19-03-2002
DE 19963899	A	05-07-2001	DE 19963899 A1	05-07-2001
			WO 0150066 A1	12-07-2001
			EP 1247048 A1	09-10-2002
US 4837414	A	06-06-1989	NONE	
FR 2798757	A	23-03-2001	FR 2798757 A1	23-03-2001
			EP 1219144 A1	03-07-2002
			WO 0122780 A1	29-03-2001
DE 4317624	C	01-06-1994	DE 4317624 C1	01-06-1994
			AU 6505794 A	20-12-1994
			WO 9428695 A1	08-12-1994
			EP 0626798 A1	30-11-1994